

**CPC****COOPERATIVE PATENT CLASSIFICATION****C01D**

**COMPOUNDS OF ALKALI METALS, i.e. LITHIUM, SODIUM, POTASSIUM, RUBIDIUM, CAESIUM, OR FRANCIUM** ( metal hydrides { monoborane, diborane or addition complexes thereof } [C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts of peroxyacids [C01B 15/00](#); sulfides [C01B 17/22](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium or tellurium [C01B 19/00](#); binary compounds of nitrogen with metals [C01B 21/06](#); azides [C01B 21/08](#); { compounds other than ammonia and cyanogen, containing nitrogen and other non-metals [C01B 21/082](#) }; metal amides [C01B 21/092](#); nitrites [C01B 21/50](#); phosphides [C01B 21/50](#); { compounds of noble gases [C01B 23/0005](#) }; phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 31/30](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); cyanides [C01C 3/08](#); salts of cyanic acid [C01C 3/14](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#) )

**C01D 1/00**

**Oxides or hydroxides of sodium, potassium or alkali metals in general**

**C01D 1/02**

. Oxides

**C01D 1/04**

. Hydroxides

**C01D 1/20**

.. Preparation by reacting oxides or hydroxides with alkali metal salts

**C01D 1/22**

... with carbonates or bicarbonates

**C01D 1/24**

... from or via fluorides or silico-fluorides

**C01D 1/26**

.. Preparation from or via cyano compounds, e.g. cyanides, cyanamides

**C01D 1/28**

.. Purification; Separation

**C01D 1/30**

... by crystallisation

**C01D 1/32**

... by absorption or precipitation

**C01D 1/34**

... with selective solvents

**C01D 1/36**

... by oxidation

**C01D 1/38**

... by dialysis

**C01D 1/40**

... by electrolysis

**C01D 1/42**

.. Concentration; Dehydration

**C01D 1/44**

.. Preparation in the form of granules, pieces, or other shaped products

**C01D 3/00**

**Halides of sodium, potassium or alkali metals in general** { ( halides in general [C01B 9/00](#) ) }

**C01D 3/02**

. Fluorides

**C01D 3/04**

. Chlorides

**C01D 3/06**

.. Preparation by working up brines; seawater or spent lyes

**C01D 3/08**

.. Preparation by working up natural or industrial salt mixtures or siliceous minerals

**C01D 3/10**

. Bromides

- C01D 3/12 . Iodides
- C01D 3/14 . Purification
- C01D 3/145 . . { by solid ion-exchangers or solid chelating agents }
- C01D 3/16 . . by precipitation or adsorption { ( [C01D 3/145](#) takes precedence ) }
- C01D 3/18 . . with selective solvents
- C01D 3/20 . . by melting
- C01D 3/22 . Preparation in the form of granules, pieces, or other shaped products
- C01D 3/24 . . Influencing the crystallisation process
- C01D 3/26 . Preventing the absorption of moisture or caking of the crystals
- C01D 5/00** **Sulfates or sulfites of sodium, potassium or alkali metals in general** { ( sulfites in general [C01B 17/62](#) ) }
- C01D 5/002 . { Preventing the absorption of moisture or caking of the crystals by additives }
- C01D 5/004 . { Preparation in the form of granules, pieces or other shaped products }
- C01D 5/006 . { Recovery of sodium sulfate from coagulation baths for the spinning of viscose }
- C01D 5/008 . { Preparation of potassium sulfate from alunite }
- C01D 5/02 . Preparation of sulfates from alkali metal salts and sulfuric acid or bisulfates;  
Preparation of bisulfates
- C01D 5/04 . Preparation of sulfates with the aid of sulfurous acid or sulfites, e.g. Hargreaves process { ( [pyrosulfites or metabisulfites C01D 5/145](#) ) }
- C01D 5/06 . Preparation of sulfates by double decomposition
- C01D 5/08 . . with each other or with ammonium sulfate
- C01D 5/10 . . with sulfates of magnesium, calcium, strontium, or barium
- C01D 5/12 . Preparation of double sulfates of magnesium with sodium or potassium
- C01D 5/14 . Preparation of sulfites ( [C01D 5/04](#) takes precedence )
- C01D 5/145 . . { Pyrosulfites or metabisulfites }
- C01D 5/16 . Purification { ( [C01D 5/145](#) takes precedence ) }
- C01D 5/18 . Dehydration { ( [C01D 5/145](#) takes precedence ) }
- C01D 7/00** **Carbonates of sodium, potassium or alkali metals in general**
- C01D 7/02 . Preparation by double decomposition
- C01D 7/04 . . with a fluoride or silico-fluoride ( [C01D 1/24](#) takes precedence )
- C01D 7/06 . Preparation via sodium or potassium magnesium carbonate

- C01D 7/07 . Preparation from the hydroxides
- C01D 7/08 . Preparation from or via cyano compounds of sodium or potassium ( [C01D 1/26](#) takes precedence )
- C01D 7/10 . Preparation of bicarbonates from carbonates ( ammonia soda process [C01D 7/18](#) )
- C01D 7/12 . Preparation of carbonates from bicarbonates { or bicarbonate-containing product }
- C01D 7/123 .. { by thermal decomposition of solids in the absence of a liquid medium }
- C01D 7/126 .. { Multi-step processes, e.g. from trona to soda ash }
- C01D 7/14 . Preparation of sesquicarbonates
- C01D 7/16 . Preparation from compounds of sodium or potassium with amines and carbon dioxide
- C01D 7/18 . Preparation by the ammonia-soda process { ( [C01D 7/12](#) takes precedence ) }
- C01D 7/22 . Purification
- C01D 7/24 .. Crystallisation
- C01D 7/26 .. by precipitation or adsorption
- C01D 7/28 .. with selective solvents
- C01D 7/30 .. by oxidation
- C01D 7/32 .. by dialysis
- C01D 7/34 .. by electrolysis
- C01D 7/35 . Varying the content of water of crystallisation or the specific gravity { ( calcination [B01J 6/00](#), [F27B](#) ) }
- C01D 7/37 .. Densifying sodium carbonate
- C01D 7/38 . Preparation in the form of granules, pieces or other shaped products
- C01D 7/40 .. influencing the crystallisation process
- C01D 7/42 . Preventing the absorption of moisture or caking
- C01D 9/00** **Nitrates of sodium, potassium or alkali metals in general** { ( preparation as fertilizers or of fertilizers containing them [C05D 5/00](#) ) }
- C01D 9/02 . Preparation by working-up natural salt mixtures
- C01D 9/04 . Preparation with liquid nitric acid
- C01D 9/06 . Preparation with gaseous nitric acid or nitrogen oxides
- C01D 9/08 . Preparation by double decomposition
- C01D 9/10 .. with ammonium nitrate
- C01D 9/12 .. with nitrates of magnesium, calcium, strontium, or barium
- C01D 9/14 .. of salts of potassium with sodium nitrate

- C01D 9/16
  - . Purification
- C01D 9/18
  - . Preparation in the form of shaped products, e.g. granules
- C01D 9/20
  - . Preventing the absorption of moisture or caking
- C01D 13/00**
  - Compounds of sodium or potassium not provided for elsewhere**
- C01D 15/00**
  - Lithium compounds**
- C01D 15/005
  - . { Lithium hexafluorophosphate }
- C01D 15/02
  - . Oxides; Hydroxides
- C01D 15/04
  - . Halides
- C01D 15/06
  - . Sulfates; Sulfites
- C01D 15/08
  - . Carbonates; Bicarbonates
- C01D 15/10
  - . Nitrates
- C01D 17/00**
  - Rubidium, caesium or francium compounds**
- C01D 17/003
  - . { Compounds of alkali metals }
- C01D 17/006
  - . . { Preparation of potassium compounds comprising precipitating potassium ions by an organic reagent or extracting them by a liquid organic phase }